Real-Time Text (RTT)

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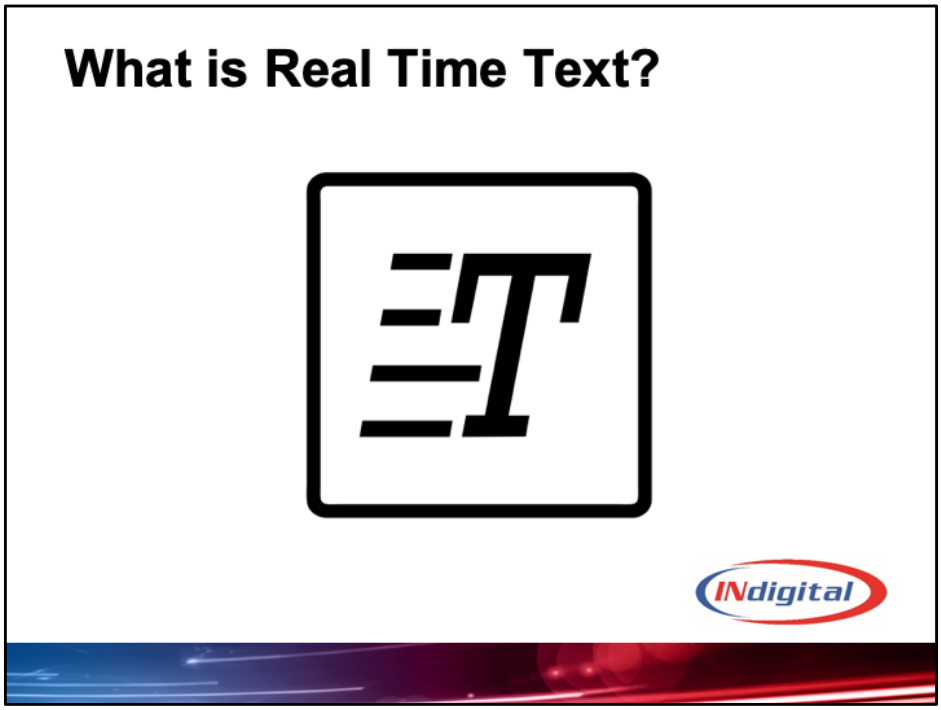
Overview

- What is Real-Time Text
- FCC Ruling on RTT
- Impact for Deaf and Hard of Hearing Citizens
- Impact on PSAPs
  - How PSAPs receive RTT today
  - How they can receive it in the future
  - Steps Needed to make it a reality

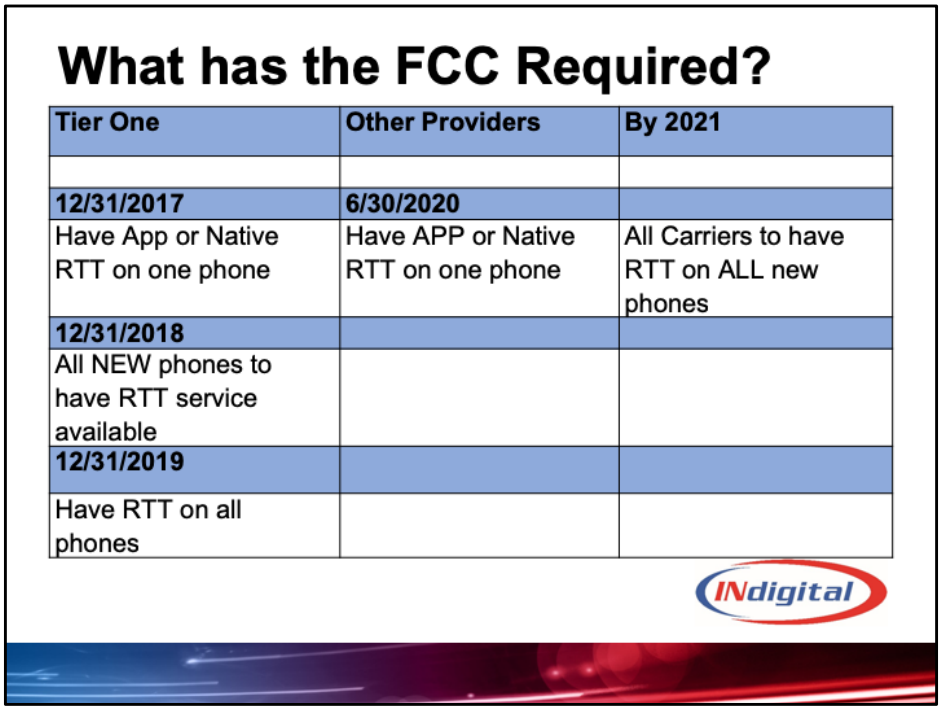


- Is a voice call to 9-1-1 with a texting component. AND – is not optional for PSAPs to receive and can be received today.
- RTT is a more natural flow of two way communications, much more like voice conversations - allowing text to be used in the same conversational method as voice.
- It is a fast and interactive.
- Allows people with hearing loss or speech impairments to communicate with non-disabled in a method more convenient for them.
- hearing or speech impaired people.
  - RTT will NOT work for wireline calls, so TTY will still be needed for some time.

Hamilton Relay is the nations largest 711 relay provider. They provide VRS, IP Relay and CapTel services.

What has the FCC Required?

Tier One	Other Providers	By 2021
12/31/2017	**6/30/2020**	
Have App or Native RTT on one phone	Have APP or Native RTT on one phone	All Carriers to have RTT on ALL new phones
12/31/2018		
All NEW phones to have RTT service available		
12/31/2019		
Have RTT on all phones		



In 2016 the FCC adopted a little known R & O - allows the wireless carriers to provide RTT in lieu of TTY - BUT must be backward compatible to TTY until the PSAP can receive RTT natively. R & O 16-145; 16-169

The R & O required a graduated level of delivery for RTT.

12-31-2017 – Big 4 wireless provider if choosing to provide RTT in lieu of TTY would either have an app or one device with native RTT

12-31-2018 – Big 4 would need RTT native on all NEW devices (if it's feasible – not all wireless devices would it be feasible – ie: flip phones)

12-31-2019 – Big 4 would need RTT on all of the wireless phones they provide, if it's feasible.

6-30-2020 – All remaining wireless providers, App or native on one device.

2021 – All carriers to have RTT on ALL new phones, if feasible.

- Carriers must notify consumers that their IP-based wireless services will not support TTY technology for calls to 911.
- Carriers must provide consumers with information about alternative text-based accessibility solutions.
- Carriers must file periodic progress reports on their development of RTT with the FCC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TTY

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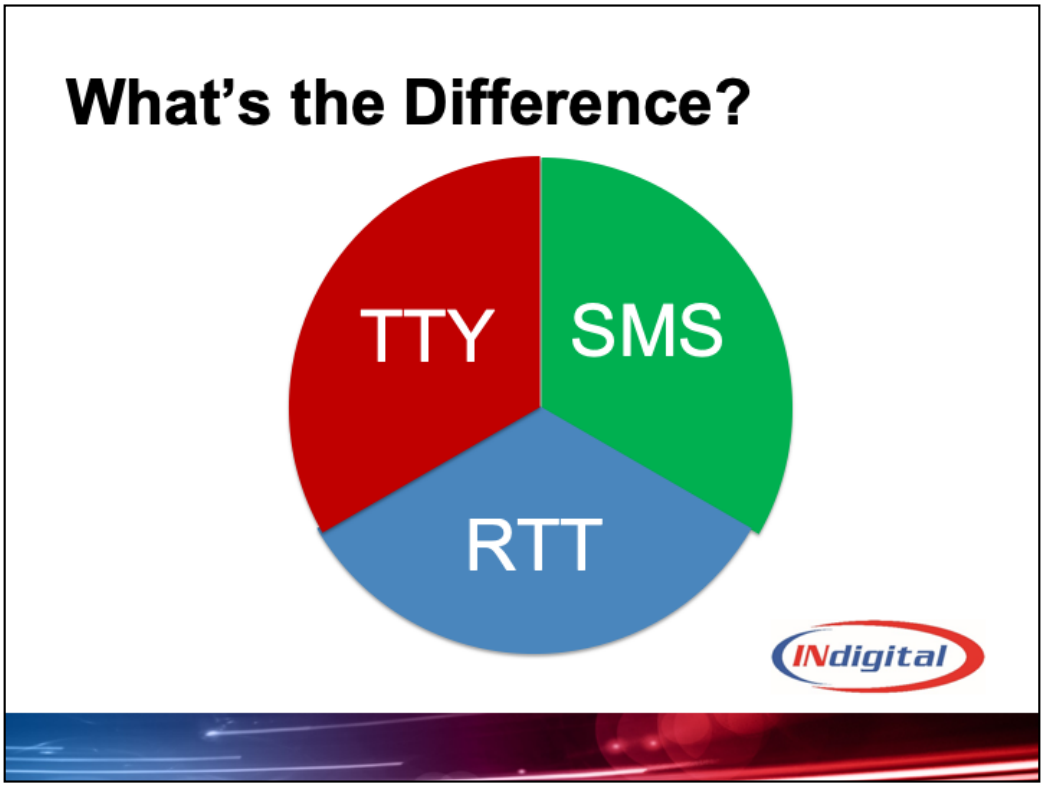


TTY

- Slow 45.5 Baud rate
- Half duplex
- Requires abbreviations
- Community phasing out
- Character errors over IP
- DOJ requires all PSAPs to have TTYs, test and training regularly

SMS

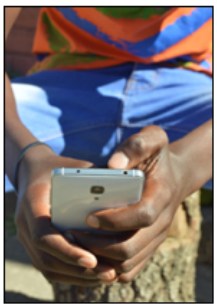
- 160 characters per message, half duplex - half **duplex** means a communication.
- To deploy the PSAP must have a text solution and request turn up by the carriers. NOT a requirement...

RTT

- "Fast Mode"
- Full duplex –is transmission of data in two directions simultaneously.
- Transmitted Instantly
- NOT an option - PSAPs receiving today via TTY.
- Underwhelming, DDBHS communities unaware its available today - but that will be changing.
- For the PSAP to receive natively, the PSAP must have an RTT solution and submit request letters to the carriers in the same manner has text.

- Designed for i3 and included in the i3 standard
- PSAP can receive via TTY today (via LNGs in a backward compatible mode - dumbs down the connectivity).

Why is RTT Important?

Consumer Perspective	PSAP Perspective	Technology Perspective
		

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CONSUMER PERSPECTIVE

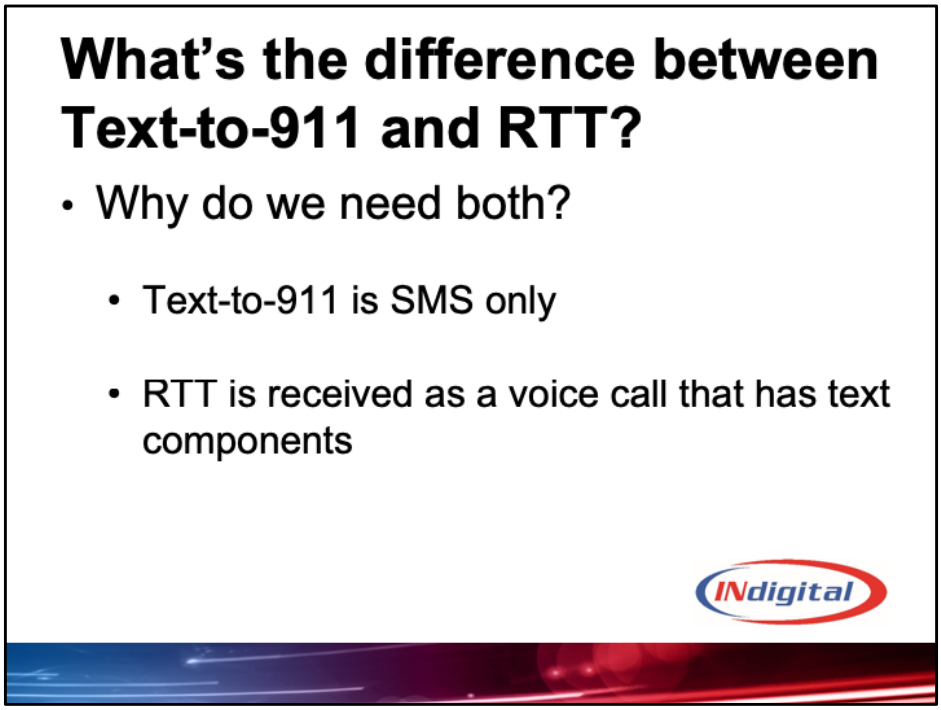
- Different consumers have needs
- RTT gives the Deaf, Deaf/Blind, Hard of Hearing and Speech Impaired communities another avenue for direct connection to 9-1-1 that provides LOCATION information for the caller.
- Faster dialogs and provide better location information

PSAP PERSPECTIVE

- Meets ADA mandate of providing direct access to segment of population who have been left out with technology advancements.
- Provides voice path – can use VCO/HCO and hear background noises (?)
- RTT is delivered via 911 trunks. Provides wireless location information.

TECHNOLOGY PERSPECTIVE

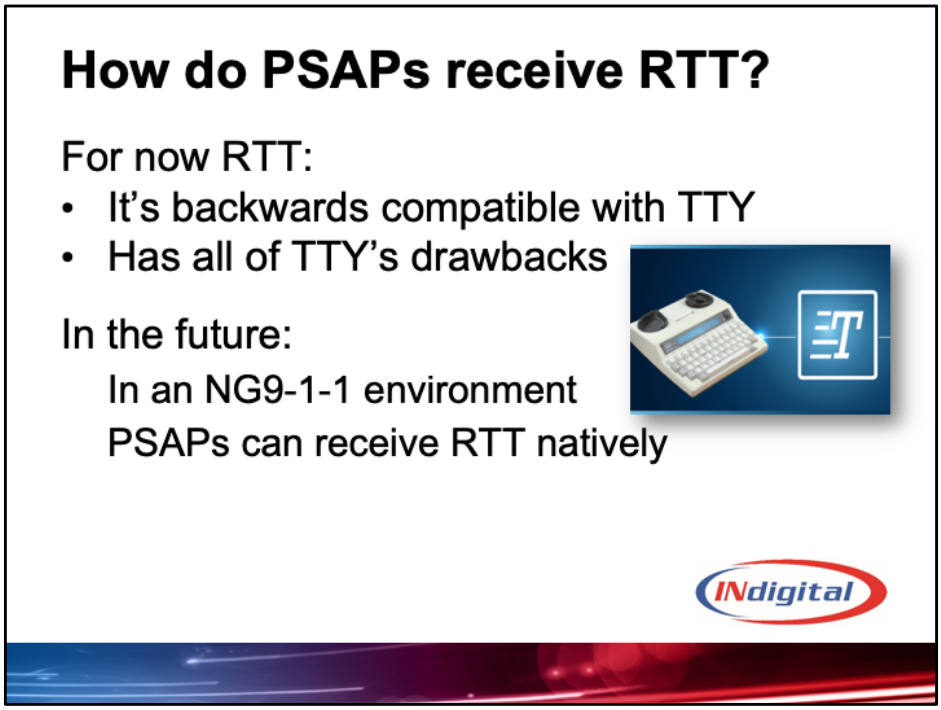
- RTT can eliminate the need to purchase specialized devices, such as TTYs, to send text in real time over wireless phones.
- Calls using RTT can be initiated and received using the same ten-digit numbers used for voice calls.
- Both parties to an RTT call can send and receive text in real time at the same time, unlike TTYs, which requires turn-taking.
- RTT is more reliable than TTY technology over IP networks – this means there will be less garbling and fewer drop-offs on calls.
- RTT provides callers with more characters for typing than TTYs do. For example, with RTT, you can use the “@” key, alphabets in multiple languages, and emojis, allowing conversations using the full "international character set."
- Both RTT and voice can be used, either at the same time or interchangeably, during the same call.



- SMS has been available since May of 2014 – and in that time only about 20% of PSAPs in the US have adopted and deployed text-to-911
- SMS can be used for many different scenarios, but mostly for those situations where a voice call may be dangerous
- RTT will likely be used more by the deaf/hard of hearing communities.
- RTT can be deployed natively – will go into more detail and the benefits in another slide
- Native deployment is optional and is rolled out similar to the text to 911 deployment method
- Caller can place a call using RTT or TTY to 911, but 911 can only call them back if they lose the connection using TTY today unless the PSAP is using RTT natively.

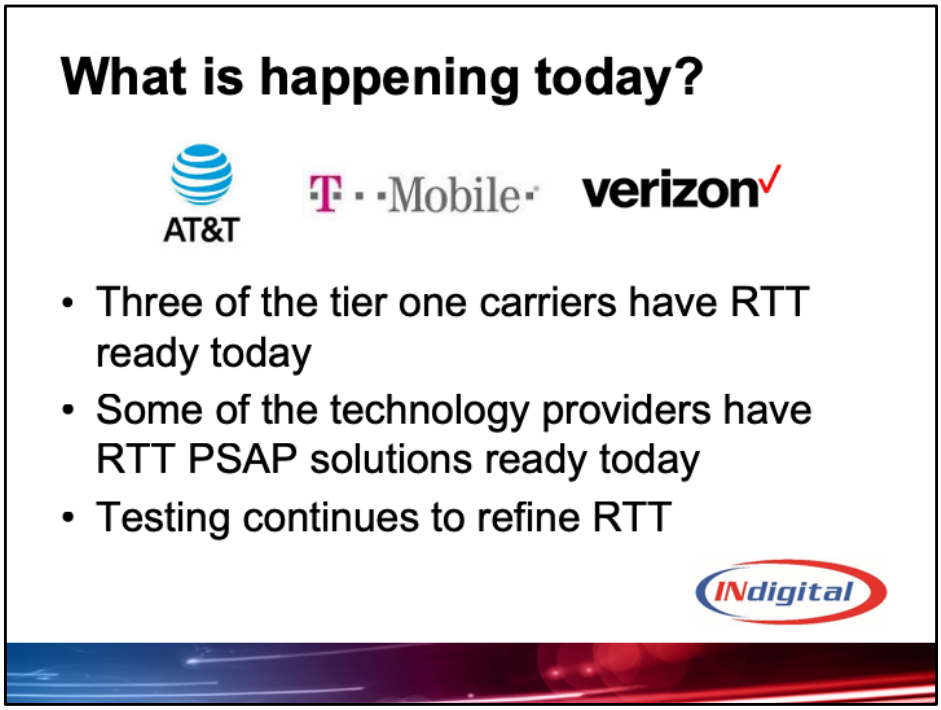
RTT is the most efficient and effective way for the deaf, deaf/blind, hard of hearing and speech impaired communities to communicate with 9-1-1

- Call is received as any other “call” you receive today
- Provides location
- Allows effective two way communication



Drawbacks:
Baudot conversions
TTY lingo/abreviations
TTY is **E X T R E M E L Y SLOW**
PSAPs deploying natively:

- True RTT to RTT – very quick, no baudot conversion issues, allows the PSAP to know they are receiving an RTT call, enables emojis/multimedia options, no tty lingo issues
- INdigital has a solution that will be ready 1st quarter of 2019 (as of right now it's the only solution we are aware of)
- Most CPE providers do not even have this on their roadmap at this time (a PSAP must commit to purchasing before they will do so)



Sprint is planning to transition to RTT as they role out their new 4G network.

User testing experiences

RTT to 9-1-1

- It works, but isn't perfect
  - App vs native on the mobile device
- **This requires that the handset have voice service and does not work in NSI environment**

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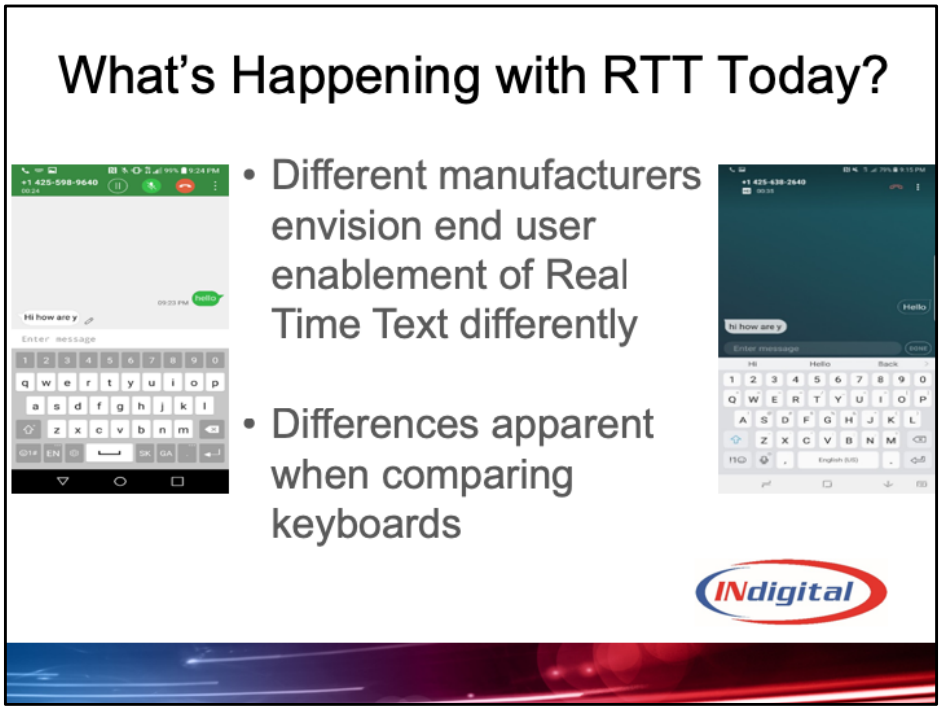


Some common elements include:

Both have leveraged existing familiarity with text "bubbles" as a common method to capture text in "thoughts"

Both include keys to create/access emoji's

LG models their keyboard after the familiar TTY including GA (Go Ahead) and SK (Stop Keying)

Samsung took a "look forward" approach where "Enter" key closes the bubble and text suggestions are provided below the entry window

Different manufacturers envision end user enablement of Real Time Text differently.

Some of the common elements include:

Both have leveraged existing familiarity with text "bubbles" as a common method to capture text in "thoughts"

Both include keys to create/access emoji's

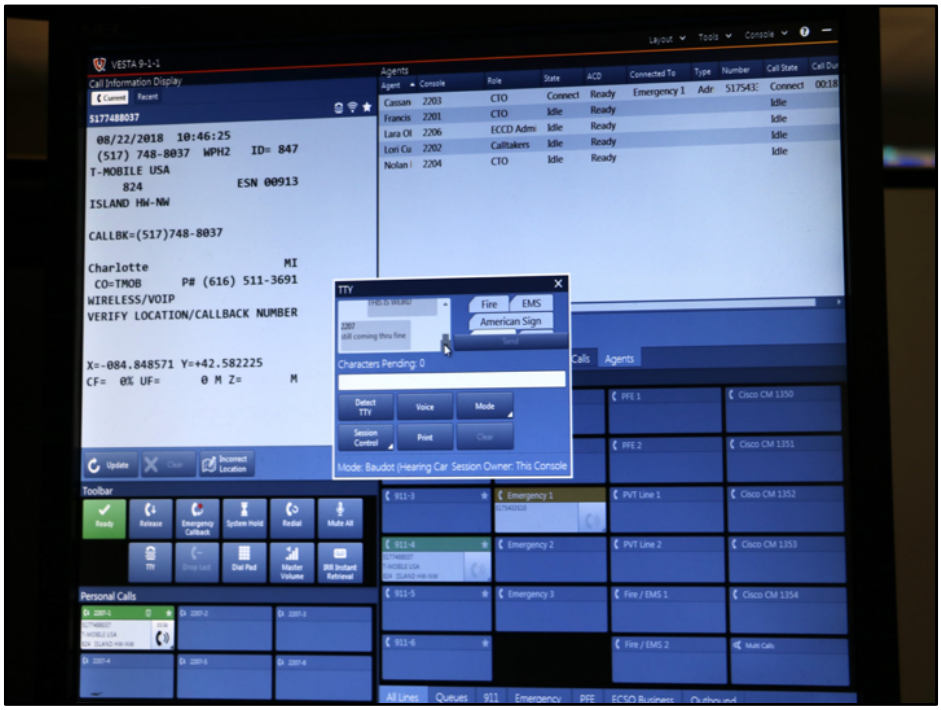
Differences readily apparent when comparing keyboards:

LG models their keyboard after the familiar TTY including GA (Go Ahead) and SK (Stop Keying)

Samsung took a “look forward” approach where “Enter” key closes the bubble and text suggestions are provided below the entry window

In all cases, the text appears in real time as it is entered.

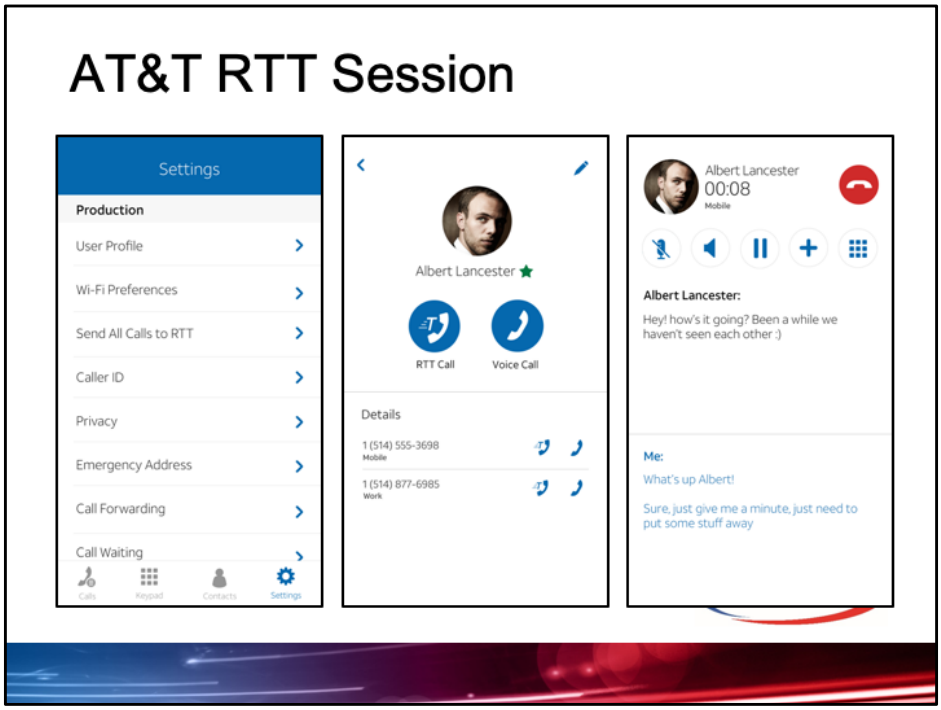
These differences enable manufacturers to assess consumer response in the early stages of a new platform and will be used to evolve the GUI based on feedback



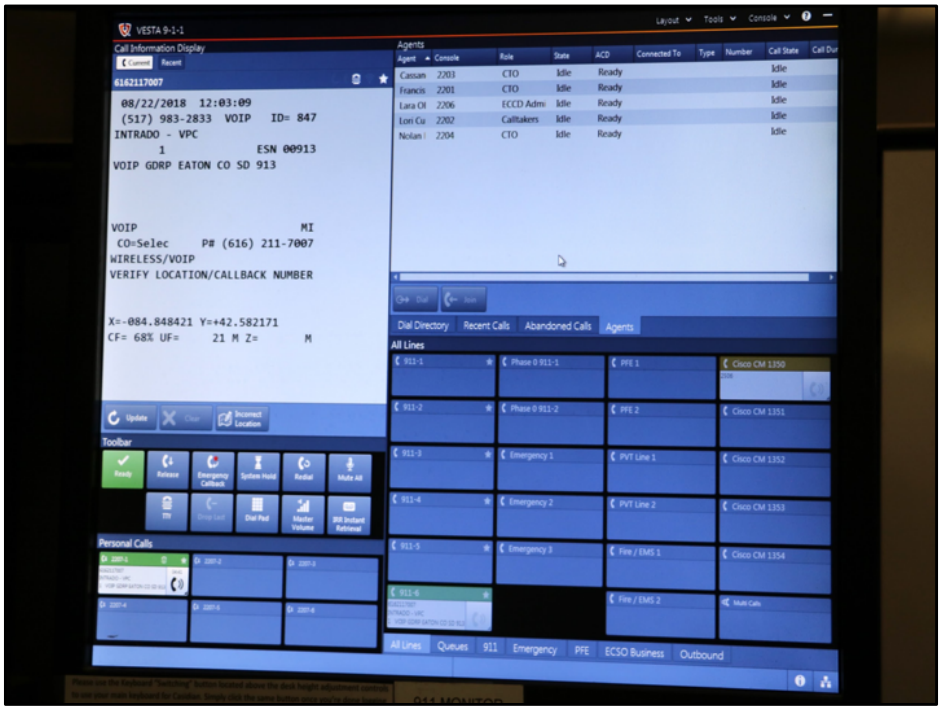
- Look at the screen - can you see anywhere the screen says it's a RTT call?
- Verizon & T-Mobile are normal wireless 9-1-1 call
    - get all the normal wireless call functionality
    - rebid
    - confidence and uncertainty
    - COS
    - HCO/VCO is muted when caller is typing (the need for muting so there isn't garble for baudot tones)
- Initially comes in as a voice call and the call taker will not necessarily know the call is an RTT call until they hear the TTY baudot tones.
- The TTY function of the CPE will pop when the RTT user begins typing and the CPE notices the baudot tones.
- In some of the tests the TTY function of the CPE popped immediately upon receiving the call / others did not pop until it heard the baudot tones.
    - When answering an RTT call from a Verizon iphone, the app automatically sends a 3 character baudot tone so the CPE (if enabled) pops the TTY window upon answer.
    - T-Mobiles phones do not do this.

- You can go to the wireless carrier website and search which cell phones have RTT available.

The difference with Verizon is upon answer, the iphone send 3 tty characters (initiating the baudot tones) so CPE w/internal tty pops automatically on receipt of the call.



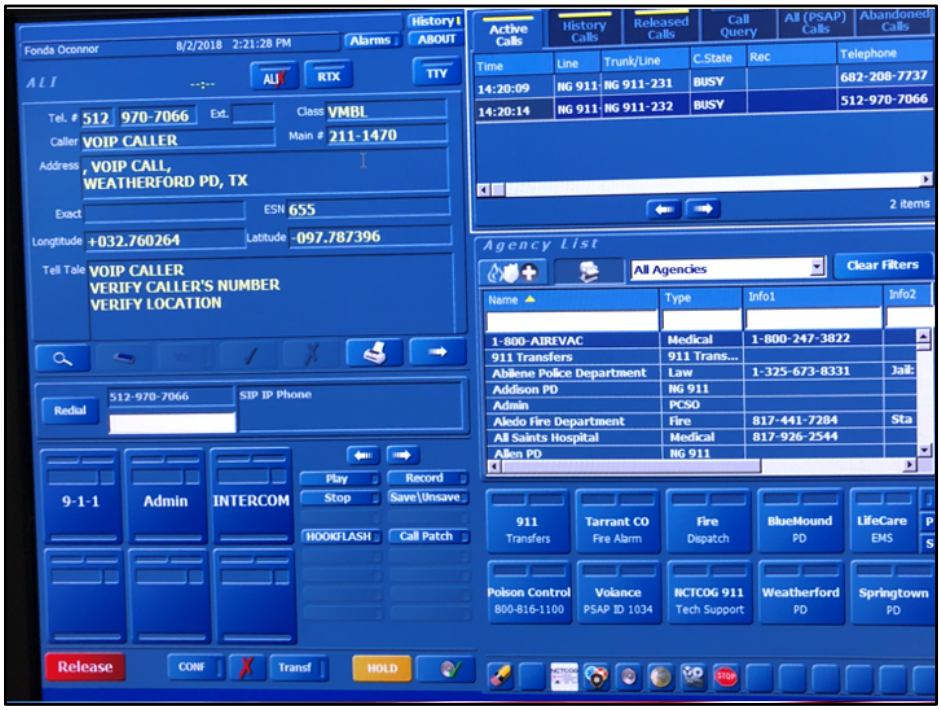
- The AT&T App - is a nomadic VoIP call
    - The app allows you enter the address you are at. It is then validated like any other VoIP address is. If a call is placed to 911 prior to the address validating, the screen will not provide an address. However it does provide a lat/long which in testing appeared to be the lat/long for the address provided during the registration process.



- Look at the screen - can you see anywhere the screen says it's a RTT call?
- AT&T is a VoIP call
    - the address provided is the address the caller input and this call is a nomadic VoIP call, meaning the caller input address may or may not be where the caller is at
    - MSAG validation can take up to 3 days (screen shots - location not MSAG validated)
    - no rebid functionality although you get latitude and longitude - you can attempt to rebid but it will not give you an updated lat/long
    - lat/long coordinates are for the address the caller input when registering
    - provides confidence and uncertainty, but it doesn't really mean anything
    - COS can be VOIP, VMBL (voip mobile) or VNOM (voip nomadic) - depending on 911 SSP
    - HCO/VCO is muted when caller is typing (the need for muting so there isn't garble for baudot tones)
- Initially comes in as a voice call and the call taker will not know the call is RTT

until they hear the TTY baudot tones

- The TTY function of the CPE will pop when the RTT user begins typing and the CPE notices the baudot tones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Alarms
History
ABOUT
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Ext.
Class VMBL
Caller VOIP CALLER
Main # 211-1470
Address VOIP CALL, WEATHERFORD PD, TX
Exact
ESN 655
Longtitude +032.760264
Latitude -097.787396
Tell Tale VOIP CALLER VERIFY CALLER'S NUMBER VERIFY LOCATION
Redial
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SIP IP Phone
9-1-1
Admin
INTERCOM
Play
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Stop
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Released Calls
Call Query
All (PSAP) Calls
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911 Trans...
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Law
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Jail:
Addison PD
NG 911
Admin
PCSO
Aledo Fire Department
Fire
817-441-7284
Sta
All Saints Hospital
Medical
817-926-2544
Allen PD
NG 911
911 Transfers
Tarrant CO Fire Alarm
Fire Dispatch
BlueMound PD
LifeCare EMS
Poison Control 800-816-1100
Voiance PSAP ID 1034
NCTCOG 911 Tech Support
Weatherford PD
Springtown PD

What should we do?

- Talk to your CPE and Text solution vendors about their plans for RTT integration
- RTT includes voice and hearing carry over
- **The goal of RTT is to make 9-1-1 directly accessible to everyone**

Steps to receive RTT directly

- PSAPs must have a solution in place
- Send a request letter to the wireless providers
- Carriers will have six months to comply with the request

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Talk to your vendors (CPE and/or Texting) about their plans for RTT integration.

RTT must be delivered in an IP environment. Once the PSAP has an RTT client, they will need to put in a formal request to each of the carriers to deliver RTT to RTT rather than backward compatibility to TTY. This process will be similar to the process of requesting text deployment in your PSAP.

There is a NENA WG currently working on RTT Guidelines, sample request letters and a checklist for deployment.

Questions?

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